"It's a real loss scientifically and an awful event politically."

Marron and Vaitukaitis adamantly deny that they bowed to political pressure. But they admit that NCRR took notice of the political overtones of the conflict with residents during its review of the center's grant. On 30 August 1999, for example, Vaitukaitis wrote Lee that "the peer review process ... was modified to address the concerns expressed by the Berkeley community about tritium emissions." That modification consisted of a safety site visit by outside evaluators and a meeting with community activists. "We knew the [perceived emission dangers] weren't significant," says Vaitukaitis, "but to them they were real, and you have to respect that."

Empty-handed. NTLF's Philip Williams, left, and Hiromi Morimoto will soon lose their jobs when the facility closes.

Although the safety panel concluded that radiation emission and risks were "extremely small," it also concurred with activists that the lab could better monitor smokestack emissions of tritium, which have decreased 10-fold in the past decade. NIH told center officials to hire a Ph.D.-level health physicist to oversee the work, a condition that NTLF director David Wemmer says he accepted "because they said if you don't agree, you won't get the grant." But the person hired was let go during his 6-month probationary period, and no replacement was found.

In addition, the center "has had a dwindling impact on the biomedical community," says Marron. Wemmer admits that publication rates have fallen since 1999 but attributes it to time spent fighting community activism. "We've been busy going to city council meetings," says facility manager Philip Williams, one of four staffers who will lose their jobs.

Not surprisingly, users praise its importance. "The NTLF has been invaluable in my research, and closing it down will destroy a decade's worth of investment and advancement," wrote Jerome Parness of the University of Medicine and Dentistry of New Jersey in a letter of protest to NIH. Parness is using tritium to understand how the drug dantrolene treats a rare and potentially fatal muscle disorder.

The NTLF's doors will shut on 6 December, a deadline that supporters are desperately trying to forestall. Grossman, who has filed a Freedom of Information Act request to learn more about how the decision was made, says he hopes "we can get enough people enraged at high enough levels." Although community activists believe that NIH's decision marks the end of a long fight to close the facility, they plan to monitor the shutdown and cleanup process. **–JAY WITHGOTT**

Jay Withgott writes from San Francisco.

PRION DISEASES

U.S. Gets Tough Against Chronic Wasting Disease

Veterinary officials in Colorado are anxiously trying to curtail an outbreak of chronic wasting disease (CWD), which affects deer and elk and is related to bovine spongiform encephalopathy (BSE) or "mad cow" disease. After the alarming finding that elk from an infected farm have been shipped to more than a dozen states, some fear that CWD may spread across the United States. In late September, U.S. Department of Agriculture (USDA) Secretary Ann Veneman declared the CWD situation an emergency, a measure that enabled her department to spend $2.6 million in federal funds to kickstart an aggressive eradication campaign.

CWD is one of the transmissible spongiform encephalopathies, such as BSE and variant Creutzfeldt-Jakob disease—the human form of BSE that has now claimed more than 100 lives in the U.K. Currently, there's no evidence that CWD could pose a similar threat. Experiments suggest that it doesn't spread to cattle under natural circumstances, and there's no evidence that humans can get sick from eating infected deer or elk meat (*Science*, 1 June, p. 1641). However, nobody can exclude that possibility either.

But even if it only affects elk and deer, CWD could ruin the elk industry, which raises the animals for their meat and velvety antlers, a popular ingredient in dietary supplements. Already, Canada has closed its borders to U.S. deer and elk. "If this is not dealt with, the industry is doomed," says Wayne Cunningham, the state veterinarian at the Colorado Department of Agriculture (CDA).

Believed to be caused by an aberrant protein called a prion, CWD causes listlessness, emaciation, and eventually death. It is thought to spread through direct contact between animals or through environmental contamination with the prion protein. The disease has been endemic for decades in wild deer and elk populations in northeastern Colorado, southeastern Wyoming, and a small part of neighboring Nebraska. Now, there is concern that infections on elk farms could spread the disease to wild populations of deer and elk anywhere in the United States, dealing a blow to the hunting industry. In Eastern states especially, which have huge populations of white-tailed deer, the disease could take a big toll, says Michael Miller, a veterinarian with the Colorado Department of Natural Resources.

CWD has popped up at 15 different elk farms in Colorado, Montana, Nebraska, Oklahoma, and South Dakota since 1997. Since August, Colorado officials have found CWD in six elk, five of which originated at a single elk ranch in Stoneham. So far, CDA has quarantined nine ranches with ties to that ranch; the more than 1300 elk living there will be killed and tested. (The only way researchers can definitively diagnose the disease is by studying the animal's brain.)

Over the past 5 years, the farm, one of the biggest in the country, has shipped some 160 animals to other parts of Colorado and more than 200 to elk farms in 15 different states as far east as Pennsylvania, says Cunningham. Because the animals can be infected for years without showing any symptoms, all of those are being tracked down to be tested. If found to have CWD, the herds they live in will have to be quarantined as well. Colorado also has imposed a moratorium on elk movements within the state.

The recent outbreaks underscore the need for an eradication program for elk farms, which the USDA has had in the works since 1999, says Lynn Creekmore, a veterinarian with the agency. Currently, farmers often don't get full reimbursement when their herds are confiscated, says Creekmore—which means they have little incentive to report sick animals. Under the

Moribund. Emaciation and drooling are symptoms of chronic wasting disease in elk.

CREDITS: (LEFT TO RIGHT) NTLF; ELIZABETH WILLIAMS/UNIVERSITY OF WYOMING DEPARTMENT OF VETERINARY SCIENCE

new program, USDA would implement an active surveillance program, pay farmers a fair price for their animals, and also pay for destruction of the carcasses and decontamination of their farms.

By acting rapidly, says Creekmore, USDA hopes to control the CWD outbreak. It's not going to be cheap. For one thing, the soil in affected farms may have to be scraped off and decontaminated at high temperatures. But, she adds, "if we decide to wait, it will be a much more costly problem 10 years from now." –MARTIN ENSERINK

PHILANTHROPY

Caltech Lands Record-Breaking $600 Million

Semiconductor pioneer Gordon Moore and his wife Betty set a new record in philanthropy last week by announcing a $600 million donation to Moore's alma mater, the California Institute of Technology (Caltech) in Pasadena. The largest gift ever to a university, the money may fund everything from items on Caltech's wish list to projects not yet determined. The gift easily tops two other record-breaking university donations this year: $400 million to Stanford University and $360 million to Rensselaer Polytechnic Institute.

Moore earned a chemistry Ph.D. in 1954 from Caltech, a science and engineering powerhouse with 900 undergraduates and 1000 graduate students. He and a colleague went on to design the first microprocessors and found Intel, based in Santa Clara, California. Half of the Moores' $600 million gift will be disbursed over 10 years by the Gordon and Betty Moore Foundation, established a year ago to fund environmental, science, and education projects. The foundation will fund mutually agreed-upon programs with "measurable results," Moore says. The other $300 million, spread over the next 5 years, will be unrestricted.

Moore says he was motivated by his "long association with Caltech" and his belief that the school "fulfills a unique position in the country" that's an "expensive endeavor." Caltech president David Baltimore calls the donation "wonderful."

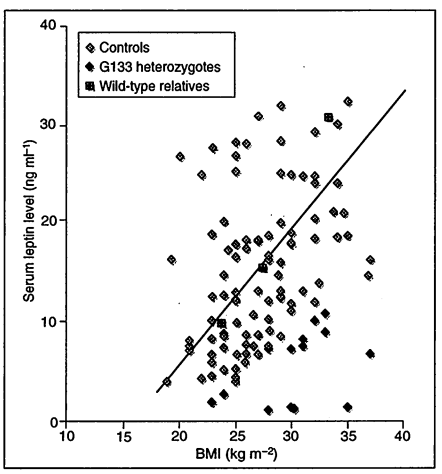
Baltimore says the money likely won't be used to expand the campus or "move in new directions." Instead, he expects it will strengthen existing research, which ranges from plate tectonics to postgenomics biology. The funds may also be used to upgrade facilities and "help faculty realize their research dreams." Caltech, he says, has a wish list that includes ideas such as a 30-meter optical telescope with the University of California. Money may also go to endowed professorships and the university's $1.5 billion endowment. –JOCELYN KAISER

OBESITY RESEARCH

Fat Hormone Makes a Comeback

Like frustrated dieters, obesity researchers sank into bitter disappointment 2 years ago when the scales tipped against leptin as a potential weight-loss drug. The hormone, produced by fat cells, normally quells appetite and balances the body's supply of fat and energy. But when given to dieting, obese individuals in a clinical trial, leptin supplements had little effect except in a fraction of those people given the highest doses (*Science*, 29 October 1999, p. 881).

But a new study has renewed researchers' hopes for leptin's potential as a pound-shedding drug. Endocrinologist Stephen O'Rahilly of Addenbrooke's Hospital in Cambridge, U.K., and colleagues identified 13 people with defects in one copy of their leptin gene. These individuals make roughly half the normal levels of the hormone. Apparently as a result, they end up heavier and packed with a significantly higher percentage of body fat than family members with two normal copies of the leptin gene. The study suggests that at least in some people, low leptin levels—a treatable condition—can lead to obesity.



Weighty conclusion. Leptin levels do correlate with body mass, at least in some people.

The results come as a surprise to many obesity researchers, who accepted the dogma that even a little bit of leptin was enough to regulate fat stores normally. "We now know that having a little less than the normal amount of leptin is enough to cause a problem with body fat and weight," says obesity researcher Jeffrey Flier of Beth Israel Deaconess Medical Center in Boston.

To pinpoint genes that confer excessive body fat, O'Rahilly spent 10 years gathering a cohort of extremely obese individuals with body mass indices (BMIs, defined as weight/height^2) of at least four times higher than normal. The team first hit the jackpot in 1997 with a publication describing two Pakistani cousins who carried defects in both copies of the leptin gene. The cousins—and several other people subsequently identified—produced virtually no leptin and showed the hallmarks of leptin deficiency first discovered in 1994 in mice: excessive body fat, extreme hunger, and sterility. But the children's parents weren't grossly obese, even though each carried one defective and one normal copy of the leptin gene. The conclusion, recalls O'Rahilly, was that leptin must operate under a threshold: "If you go from zero leptin to a smidgen, that is all you need" for normal fat metabolism, he says.

On the clinical front, the threshold theory explained why leptin apparently didn't work when given to most obese individuals. Most carry normal leptin genes, and many, in an apparent paradox, actually make higher than normal amounts of leptin—they just don't respond to the hormone properly. "So taking someone with leptin amount x and making it x-plus-something doesn't seem to make much of a difference," O'Rahilly explains—or at least, it didn't appear to make a difference until now.

The new study, based on three unrelated families, two in the U.K. and the third in Canada, calls this received wisdom into question. Some members of these families carry a mutation in at least one copy of the leptin gene, decreasing—to varying degrees in different family members—the amount of leptin their bodies produce. Most are heavy but not grossly obese. The team measured the volunteers' blood leptin levels, BMI, and percentage of body fat. The lower the leptin level, the higher the BMI and percentage body fat, the researchers report in the 1 November issue of *Nature*.

People with both leptin genes knocked out respond "extremely well" to therapy, says O'Rahilly, who is preparing results for publication. Leptin injections damped down appetite, caused people to lose weight, and apparently spurred the onset of puberty. No similar assessments could be made with the new cohort of individuals with a single-gene defect: All refused leptin treatment. "These people are from a culture that considers it a status symbol to be chubby," he explains. But he suspects that some chubby people—with or without a leptin gene defect—who would prefer to slim down might benefit from the research. As O'Rahilly says, "There might be an obese subgroup with equivalently low leptin levels, which at least might be worthy of a clinical trial." –TRISHA GURA

CREDIT: I. FAROOQI *ET AL.*, *NATURE* 414, 34 (2001)